

Appl. No. 10/045,897
Amdt. dated September 13, 2006
Reply to Office Action of July 13, 2006

Atty. Ref. 81800.0176
Customer No. 26021

Remarks/Arguments

Reconsideration of this application is requested.

Request for Continued Examination (RCE)

A request for continued examination (RCE) is enclosed in response to the final Office Action mailed on July 13, 2006.

Claim Status

Claims 1-20 were presented. Claims 1, 3, 5-9, 12, 15 and 18 are amended. Claim 21 is added. Claims 1-21 are now pending.

Claim Rejections - 35 USC 103

Claims 1-8 and 12-20 are rejected under 35 USC 103(a) as obvious over Tanaka (US 6,564,256) in view of Palevich (6,889,256). Claims 9-11 are rejected under 35 USC 103(a) as obvious over Joffe (US 6,801,341) in view of Brossman (US 6,536,773). In response, applicant traverses the rejections and amends claims 1, 3, 5-9, 12, 15 and 18 to emphasize the inventive and distinguishing aspects of the present invention.

Claims 1-8 and 12-20

The present invention addresses the problem of establishing connections between network devices in mutually different LANs. This stems from the difficulty in establishing a connection from the Internet to network devices within a LAN. In the present invention, a TCP/IP connection is established following an authenticated login from network device 11 in local system 1 to a relay server 4. Connection information holding unit 42 is provided for holding connection information such as user ID, password, renewal date, attribution and so forth. Connection information also includes data specifying the connections between network devices and relay servers. Once authentication is passed, network device 11 holds or maintains the established connection with relay server 4 so that communication can pass unhindered in both directions between relay server 4 and network device 11.

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Network device 11 may demand a connection for communication with another network device using the held connection with relay server 4. However, that network device (e.g. network device 21) may be in another local system 2 and connected with another relay server 5 (via a held connection established in the same manner as the held connection between server 4 and network device 11). The relay servers exchange connection information, which is stored in connection information holding unit 42, identifying the connections between network devices and relay servers. Using the information stored in the connection information holding unit 42, the relay servers can recognize and combine, respectively, the held connection between network device 11 and relay server 4; the connection between relay server 4 and relay server 5; and the held connection between relay server 5 and network device 21. Hence, a "virtual" direct connection is established between network device 11 and 21 for unhindered two-way communication, despite the fact that they reside in different local systems and are connected to different relay servers. Further, when a network device is disconnected or a new network device establishes a connection with a relay server, the connection information holding unit 42 updates or "renews" the connection information and provides the renewed information to the other relay servers so that their records can be updated as well.

Tanaka, cited against claims 1-8 and 12-20, is directed to an image transfer system using the DICOM (Digital Imaging and Communication in Medicine) protocol. Tanaka's system includes terminals T1...Tn, relay servers P1 and P2, archiver 1 and database 2. The system operates as follows: a terminal T1 submits a request for a desired piece of medical image data to relay server P1. Relay server P1 obtains the image data from archiver 1, stores the image in cache C1 and transfers the image to requesting terminal T1. If terminal T2 requests the same image from server P1, server P1 can retrieve the data from cache C1 and transfer the image to terminal T2 without retrieving the image from archiver 1. In addition, any of the servers P1 and P2 can communicate with archiver 1 and database 2. In this manner, Tanaka reduces data traffic and increases transfer speed.

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On page 2 of the Action, fourth line from the bottom, cache C1 is equated with connection information holding unit 42. Applicant strongly disagrees with this characterization and submits that storing medical image data in cache C1 is not analogous to storing connection status data in a connection information holding unit, as the former relates to content while the latter relates to network connections. As disclosed by Tanaka, "relay server P1 stores the medical image data in the cache C1" (col. 5, line 67 - col. 6, line 1). Tanaka is silent on the storage or use of connection information such as user ID, password and renewal date. In the present invention, by contrast, parameters related to connection information are stored in connection information holding unit 42 (FIG. 3, paragraph [0037]). Connection information allows relay servers to form "virtual" direct connections for secure communication. Thus, Tanaka does not disclose a connection information holding unit for tracking connection status of the network.

Furthermore, Tanaka does not use connection information stored in connection information holding unit 42 to authenticate a login process between network device 11 and relay server 4. One advantage to the above feature is that the relay server 4 will prevent unauthorized connections with restricted third parties, thereby enhancing the safety of the system. Claims 1, 3, 5-8, 12, 15 and 18 are each amended along the following lines to emphasize these distinctions:

...wherein TCP/IP connections are authenticated by comparing the login demand with connection information stored in the connection information holding means...

Moreover, new dependent claim 21 is added to specify that the connection information includes user identification, password and renewal date. In this regard, there is clearly no disclosure in Tanaka of renewal of connection information, as recited in claim 21. Renewal of connection information provides the additional advantage of allowing relay servers to properly route connections demands such that disconnected connections are not utilized.

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Palevich does not remedy the deficiencies of Tanaka. Palevich is directed to caching and buffering compressed image files and transferring them from a remote server to a device with limited memory (col. 1, lines 55-65). There is no disclosure, teaching or suggestion of connection information, authentication or renewal as required by the amended claims of this application.

Since Tanaka and Palevich does not disclose or suggest each and every element of independent claims 1, 3, 5-8, 12, 15 and 18, it cannot anticipate those claims or claims 2, 4, 13-14, 16-17 and 19-20 dependent thereon. The rejections of those claims 1-8 and 12-20 under 35 USC 103(a) should accordingly be withdrawn.

Claims 9-11

Joffe, cited against claims 9-11, is directed to a fax communication system transmitting through a packet switching network. As shown in FIG. 2, fax machines 32 and 70 communicate bi-directionally over an IP network 46 containing a single fax relay server 50. However, applicant's facsimile system in claims 9-11 contains a plurality of facsimile relay servers (FIG. 10). Claim 9 is amended to clarify this distinction. The secondary reference Brossman is directed towards rendering grayscales using calibrated transforms in a facsimile machine. Brossman does not disclose a fax relay server and does not remedy the deficiencies of Joffe.

Since this feature is not disclosed or suggested by the combination of Joffe and Brossman, they do not render those claims obvious. The rejections of claims 9-11 under 35 USC 103(a) should be withdrawn.

Conclusion

This application is now believed to be in condition for allowance. The Examiner is urged to telephone the undersigned to resolve any issues that remain after entry of this amendment.


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Any fees due with this response may be charged to our Deposit Account No.
50-1314.

Respectfully submitted,
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